

Exhibit 20

MEMORANDUM TO FILE

Subject: EPA's decision to terminate Clean Water Act Section 404(q) dispute resolution process regarding proposed Pebble Mine, Bristol Bay watershed, Alaska (POA-2017-00271).

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Date: June 12, 2020

The purpose of this memo is to document the events that led up to the U.S. Environmental Protection Agency's (EPA) decision not to reserve its right to potentially elevate decisions regarding a Clean Water Act (CWA) Section 404 permit for the proposed Pebble Mine (Bristol Bay watershed, Alaska) pursuant to the 1992 Memorandum of Agreement between EPA and the Department of the Army regarding CWA Section 404(q) (404(q) MOA).¹ EPA shared this decision with the U.S. Army Corps of Engineers (Corps) in a May 28, 2020 letter from EPA Region 10 Regional Administrator Chris Hladick to the District Engineer for the Corps Alaska District Colonel David Hibner.

Background regarding the procedures in the 404(q) MOA

The 404(q) MOA outlines a process and time frames for coordinating and resolving differences between EPA and the Corps associated with the review of CWA Section 404 individual permit applications. This process encourages resolution of disputes at the local level (i.e., between the applicable EPA regional office and Corps district office) but for issues that cannot be resolved at the local level, the MOA provides a process for EPA regional offices to elevate issues to the Assistant Administrator for Water at EPA headquarters who could then raise issues to the Assistant Secretary of the Army (Civil Works) (ASA-CW) for final resolution. For cases in which a Section 404 permit application is pending before the Corps, EPA has frequently exhausted the dispute resolution procedures provided by the 404(q) MOA before utilizing its independent authority under CWA Section 404(c) (EPA's "veto" authority).

To reserve the right to avail itself of the elevation process in the 404(q) MOA, EPA would normally follow a two-step process:

1. Issue a "3(a)" letter **within the comment period** for the Corps Public Notice for the proposed permit if it determines at that time that the project "may result in substantial and unacceptable impacts to aquatic resources of national importance." The 404(q) MOA indicates that "these cases will cause resource damages similar in magnitude to cases evaluated under Section 404(c)."
2. Issue a "3(b)" letter **within 25 calendar days after the end of comment period** if it determines at that time (in consideration of any additional information provided by the

¹ The 404(q) MOA is available at: <https://www.epa.gov/cwa-404/cwa-section-404q-memorandum-agreement-between-epa-and-department-army-text>.

Corps) that the project “will result in a substantial and unacceptable impact on aquatic resources of national importance.” EPA’s letter must explain (1) why there will be such impacts and (2) why the permit must be modified, conditioned, or denied to protect the resources. EPA should explain how it made its determination, which should be based on site-specific information, and relate to matters within EPA’s authority and expertise.

EPA may also skip issuance of a 3(a) letter and simply issue a 3(b) letter by the close of the comment period where it believes sufficient information exists in the record to support issuance of a 3(b) letter.² Under the 404(q) MOA, if EPA does not follow the two-step process above or issue a 3(b) letter by itself by the close of the comment period, it fails to reserve its right to avail itself of the elevation process in the 404(q) MOA.

EPA’s application of the steps in the 404(q) MOA process in the case of Pebble Mine

The Pebble Limited Partnership (PLP) proposes to produce commodities, including copper, gold, and molybdenum, from the Pebble deposit at the headwaters of the Koktuli River and Upper Talarik Creek (Pebble Mine). These waters contribute to the Nushagak and Kvichak Rivers, respectively, within the Bristol Bay watershed. PLP’s proposal requires a CWA Section 404 permit from the Corps for the discharge of dredged or fill material into waters of the U.S.

The Corps determined that in this case the Section 404 permit process triggered the requirement to develop an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act. At the Corps’ request, EPA agreed to be a cooperating agency on the development of the EIS and provided scoping comments on the EIS in June of 2018. EPA also provided extensive comments on the draft EIS which was released for public comment in February of 2019. The comment period for the Corps’ Public Notice for a CWA Section 404 permit for the proposed Pebble Mine (POA-2017-00271) and the draft EIS ended on July 1, 2019.

In the final draft Section 404 comment letter sent to EPA senior leadership on June 21, 2019, EPA career staff concluded that the standard for a 3(b) letter was satisfied and recommended issuance of a 3(b) letter. This recommendation was based on EPA’s careful review of the project’s draft EIS, its permit application, and other extensive supporting materials in the record at the time.³ However, without explanation or further discussion, leadership directed issuance of a 3(a) letter and EPA Region 10’s final Section 404 comment letter to the Corps issued on July 1, 2019 took the form of a 3(a) letter, which stopped short of saying “that in EPA’s opinion the discharge will have a substantial and unacceptable impact on aquatic resources of national importance.” By issuing a 3(a) letter, EPA would need to issue a 3(b) letter no later than July 26, 2019, if it wished to reserve its right to avail itself of the elevation process in the 404(q) MOA. The U.S. Fish and Wildlife (USFWS) also had concerns regarding the proposed project and submitted its own 3(a) letter by July 1, 2019 and followed up with a 3(b) letter by July 26, 2019

² See Question and Answer 13 in the 404(q) MOA Interagency Questions and Answers, available at: <https://www.epa.gov/cwa-404/1992-cwa-section-404q-memorandum-agreement-interagency-questions-and-answers>.

³ The text of the draft Section 404 comment letter provided to EPA leadership on June 21, 2019, included all of the information necessary to support a 3(b) letter consistent with the 404(q) MOA.

consistent with their 404(q) MOA with the Department of the Army which contains the same processes and timelines as the EPA/Army 404(q) MOA.

EPA's first 3(b) letter extension request: As the July 26, 2019 deadline approached, EPA career staff again recommended issuance of a 3(b) letter; EPA career staff determined that the standard for a 3(b) letter was satisfied on June 21, 2019 and nothing had changed in the record to alter that determination. Instead of issuing a 3(b) letter, without explanation or further discussion with EPA career staff, EPA General Counsel Matthew Leopold⁴ sent a letter to the ASA-CW dated July 25, 2019 requesting an extension to EPA's 3(b) letter deadline. This extension request represented a divergence from the 404(q) MOA and was unprecedented in the history of the MOA. In response to EPA's request, the ASA-CW extended EPA's 3(b) letter deadline until October 24, 2019.

EPA's second 3(b) letter extension request: As EPA's new October 24, 2019 deadline approached, EPA career staff again recommended issuance of a 3(b) letter, because nothing in the record had changed to alter the determination that the standard for issuing a 3(b) letter had been satisfied, ever since June 21, 2019. Instead of issuing a 3(b) letter and without explanation or further discussion with EPA career staff, EPA's General Counsel Matthew Leopold sent another letter to the ASA-CW dated October 22, 2019 requesting a second extension to EPA's 3(b) letter deadline. In response to EPA's request, the ASA-CW extended EPA's 3(b) letter deadline until February 28, 2020.

EPA's third 3(b) letter extension request: As EPA's new February 28, 2020 deadline approached, EPA career staff again recommended issuance of a 3(b) letter, because nothing in the record had changed to alter the determination that the standard for issuing a 3(b) letter had been satisfied, ever since June 21, 2019. Based on EPA's ongoing review of the project's preliminary final EIS⁵ the standard for issuing a 3(b) letter continued to be met. Instead of issuing a 3(b) letter and without explanation or further discussion with EPA career staff, EPA's General Counsel Matthew Leopold sent a letter to the ASA-CW dated February 25, 2020 requesting a third extension to EPA's 3(b) letter deadline. In response to EPA's request, the ASA-CW extended EPA's 3(b) letter deadline until May 28, 2020.

Interagency coordination regarding CWA Section 404 issues: During a twelve-week period from March 12 through May 28, 2020, an interagency team of managers and scientific and technical staff from the Corps, EPA, and USFWS met weekly to discuss issues regarding the proposed

⁴ On March 22, 2019, the EPA Administrator signed a one-time delegation of authority to the General Counsel to "perform all functions and responsibilities retained by the Administrator or previously delegated to the Assistant Administrator for Water related to the Pebble Deposit Area, Southwest Alaska." The Administrator and the Assistant Administrator for Water had recused themselves from the Pebble Mine project based on conflicts of interest.

⁵ The Corps provided EPA and other EIS cooperating agencies with a copy of the preliminary final EIS on February 6, 2020 and requested agency comments by March 23, 2020. EPA completed its review of the proposed project's preliminary final EIS and submitted its comments to the Corps on March 26, 2020.

Pebble Mine and the project's compliance with the CWA Section 404(b)(1) Guidelines (Guidelines).⁶ The Guidelines are the substantive environmental criteria used to evaluate proposed discharges of dredged or fill material. The Guidelines require the Corps to make written factual determinations of the potential short-term or long-term effects of a proposed discharge on the physical, chemical, and biological components of the aquatic environment and "[s]uch factual determinations shall be used in § 230.12 in making findings of compliance or non-compliance with the restrictions in § 230.10."⁷ Discharges of dredged or fill material into waters of the U.S. cannot be permitted unless compliance with the Guidelines has been demonstrated.

Key findings and areas of agreement among the interagency team following its twelve-week period of intensive coordination included:

- Relative to compliance with 40 CFR 230.10(a), the interagency team agrees that Alternative 3 – North Road Only Alternative, Concentrate Pipeline and Return Water Pipeline Variant, which was evaluated in the proposed project's Environmental Impact Statement (EIS), is the least environmentally damaging practicable alternative (LEDPA) for purposes of the Guidelines;⁸
- Relative to compliance with 40 CFR 230.10(c), the interagency team agrees that the direct, secondary, and cumulative impacts of the discharges of dredged or fill material associated with the LEDPA would cause or contribute to significant degradation of waters of the U.S. within the Bristol Bay watershed. Permanent loss of 2,292 acres of wetlands and other waters is anticipated, including 105.4 miles of streams, along with secondary impacts to 1,647 acres of wetlands and other waters, including 80.3 miles of streams, associated with fugitive dust deposition, dewatering, and fragmentation of aquatic habitats; and
- Relative to compliance with 40 CFR 230.10(d), the interagency team agrees that the minimization and compensation measures currently proposed by the permit applicant as well as other measures identified during interagency discussions would not reduce these impacts to a level that would not cause or contribute to significant degradation of waters of the U.S. pursuant to the Guidelines.

These points of agreement reflected the interagency team's careful evaluation of the potential short-term and long-term effects of the proposed discharges of dredged or fill material on the physical, chemical, and biological components of the aquatic environment, with attention on the impacts relevant to the Guidelines.⁹

The team also agreed on a number of minimum compensatory mitigation requirements regarding the proposed project's direct and secondary impacts, particularly those associated with the mine

⁶ 40 CFR Part 230.

⁷ 40 CFR 230.11.

⁸ Of all the alternatives evaluated in the project's EIS, this alternative most resembles the mine scenarios evaluated in EPA's 2014 CWA Section 404(c) Proposed Determination regarding the Pebble Mine which is available at: <https://www.epa.gov/bristolbay/2014-proposed-determination-pursuant-section-404c-clean-water-act-pebble-deposit-area>

⁹ Notably, the findings regarding 230.10(c) and (d) are the same findings EPA reached regarding these points in its 2014 CWA Section 404(c) Proposed Determination regarding the Pebble Mine.

site. These would be provided to the permit applicant in the event that it sought to propose additional compensation measures to attempt to address the significant degradation finding. The Corps also committed to reengage the interagency team in the review of any additional minimization and compensation measures developed by the permit applicant. The results of this interagency coordination are described in more detail in the attached *Summary of Clean Water Act Section 404 Coordination Regarding the Proposed Pebble Mine (Bristol Bay watershed, Alaska)*.

EPA's May 28, 2020 letter to the Corps: EPA staff were generally pleased with the level of agreement among the Corps, USFWS and EPA team regarding the challenges the proposed Pebble Mine would face in order to be compliant with and permissible under the Guidelines. However, as expressed during our coordination process, the Corps' perspective on the challenges in permitting the mine could change in response to new information submitted by the permit applicant or other factors or pressures. As such, EPA career staff continued to recommend that EPA submit a 3(b) letter by the May 28, 2020 deadline in order to reserve EPA's right to avail itself of the elevation process in the 404(q) MOA should disputes regarding the proposed project arise in the future. In light of the nature and magnitude of the proposed project's anticipated impacts to the aquatic ecosystem, the extraordinary level of controversy surrounding the proposed project, and EPA's public commitments to fully engage in the 404(q) process (particularly as a rationale for withdrawing its 2014 CWA Section 404(c) Proposed Determination regarding the Pebble Mine¹⁰), it would be highly unusual for EPA not to issue a 3(b) letter in this case.

However, without explanation or further discussion, EPA senior leadership informed career staff that it was not open to issuing a 3(b) letter or requesting another extension for the issuance of a 3(b) letter in the review of the Section 404 permit application for the proposed Pebble Mine. Based on this direction, EPA staff prepared a draft comment letter that cited the key areas of agreement among the interagency team summarizing the critical challenges to permitting the project now or in the near future, notably that the project would cause or contribute to significant degradation and that the minimization and compensation measures proposed by the permit applicant would not alter this finding. The implication in this draft letter was that a 3(b) letter was not necessary since major areas of dispute had been resolved and the agencies found agreement on several critical points. EPA senior leadership objected to such a letter on the basis that it was not appropriate for EPA to speak for the Corps or USFWS and that EPA could only speak for itself. In response, EPA career staff revised the letter to present the key findings of the interagency team as EPA's determinations. The letter also highlighted the Corps' recent coordination on 404 issues and its commitment to continue to coordinate with EPA going forward, as discussed during the May 21st interagency meeting. The implication in this draft letter was that a 3(b) letter was not necessary because the Corps had committed to coordinate with EPA outside the MOA process, as necessary.

¹⁰ Available at: <https://www.federalregister.gov/documents/2019/08/30/2019-18596/notification-of-decision-to-withdraw-proposed-determination-to-restrict-the-use-of-an-area-as-a>

EPA senior leadership remained uncomfortable including key findings in the letter even when they were only attributed to EPA. Senior leadership opted to edit the final letter in a way that removed the key findings and areas of agreement based on the twelve weeks of intensive coordination among the Corps, USFWS, and EPA team, leaving only points that were already known to the public regarding the LEDPA and the amount of project impacts. While the final letter issued on May 28, 2020 made it clear that EPA was not issuing a 3(b) letter, it was no longer clear why. Further, some of the edits made by senior leadership to the final letter left key sentences unintelligible.

Since EPA did not send a 3(b) letter by May 28, 2020, EPA will not be able to avail itself of the elevation process in the 404(q) MOA should disputes regarding issues associated with the proposed permit arise in the future.

At this point, the Corps expects to issue a final EIS in July 2020, after which it plans to provide the permit applicant with the compensation requirements it has developed for the proposed project. This disclosure to the applicant could prompt the development of additional minimization and compensation measures by the permit applicant and further review and decision-making regarding the proposed project. A 3(b) letter would have ensured an opportunity for EPA engagement in the review of these materials and the ability to exercise the full extent of the dispute resolution processes included in the 404(q) MOA. As it stands, if EPA has concerns regarding the proposed project moving forward, the only formal mechanism it could exercise is its authority under CWA Section 404(c).

**Summary of Clean Water Act Section 404 Coordination
Regarding the Proposed Pebble Mine
(Bristol Bay Watershed, Alaska)**

I. Introduction

The purpose of this document is to summarize the key findings and areas of agreement among a U.S. Army Corps of Engineers (Corps), U.S. Environmental Protection Agency (EPA), and U.S. Fish and Wildlife Service (USFWS) interagency team based on twelve weeks of intensive coordination related to the evaluation of the proposed Pebble Mine pursuant to the Clean Water Act (CWA) Section 404(b)(1) Guidelines (Guidelines).¹

Key findings and areas of agreement include:

- Relative to compliance with 40 CFR 230.10(a), the interagency team agrees that Alternative 3 – North Road Only Alternative, Concentrate Pipeline and Return Water Pipeline Variant, which was evaluated in the proposed project's Environmental Impact Statement (EIS), is the least environmentally damaging practicable alternative (LEDPA) for purposes of the Guidelines;
- Relative to compliance with 40 CFR 230.10(c), the interagency team agrees that the direct, secondary, and cumulative impacts of the discharges of dredged or fill material associated with the LEDPA would cause or contribute to significant degradation of waters of the U.S. within the Bristol Bay watershed. Permanent loss of 2,292 acres of wetlands and other waters is anticipated, including 105.4 miles of streams, along with secondary impacts to 1,647 acres of wetlands and other waters, including 80.3 miles of streams, associated with fugitive dust deposition, dewatering, and fragmentation of aquatic habitats; and
- Relative to compliance with 40 CFR 230.10(d), the interagency team agrees that the minimization and compensation measures currently proposed by the permit applicant as well as other measures identified during interagency discussions would not reduce these impacts to a level that would not cause or contribute to significant degradation of waters of the U.S. pursuant to the Guidelines.

These points of agreement reflect the interagency team's careful evaluation of the potential short-term and long-term effects of the proposed discharges of dredged or fill material on the physical, chemical, and biological components of the aquatic environment, with attention on the impacts relevant to the Guidelines.

The team also agreed on a number of minimum compensatory mitigation requirements regarding the proposed project's direct and secondary impacts, particularly those associated with the mine site. These would be provided to the permit applicant in the event that it sought to propose additional compensation measures to attempt to address the significant degradation finding. The

¹ 40 CFR Part 230.

Corps also committed to reengage the interagency team in the review of any additional minimization and compensation measures developed by the permit applicant.

II. Background

The Pebble Limited Partnership (PLP) proposes to produce commodities, including copper, gold, and molybdenum, from the Pebble deposit at the headwaters of the Koktuli River and Upper Talarik Creek (Pebble Mine). These waters contribute to the Nushagak and Kvichak Rivers, respectively, within the Bristol Bay watershed. PLP's proposal requires a CWA Section 404 permit from the Corps for the discharge of dredged or fill material into waters of the U.S. and its proposal is being reviewed the by the Corps under Department of Army permit application number POA-2017-00271.

During a twelve-week period from March 12 through May 28, 2020, an interagency team of managers and scientific and technical staff from the Corps, EPA, and USFWS met weekly to discuss issues regarding the proposed Pebble Mine and the project's compliance with the Guidelines (see Attachment A for meeting schedule). Staff from AECOM, the Corps' third-party contractor who is assisting the Corps in developing the Pebble Project EIS, also participated in the meetings. The Guidelines are the substantive environmental criteria used to evaluate proposed discharges of dredged or fill material. The Guidelines require the Corps to make written factual determinations of the potential short-term or long-term effects of a proposed discharge on the physical, chemical, and biological components of the aquatic environment and "[s]uch factual determinations shall be used in § 230.12 in making findings of compliance or non-compliance with the restrictions in § 230.10."² Projects cannot be permitted unless compliance with the Guidelines has been demonstrated.

The Guidelines recognize that the level of required analysis and documentation are scaled to reflect the significance and complexity of the proposed discharge activity. The proposed mine at the Pebble deposit would be more than five times the worldwide median size for a deposit of this type on a largely pristine landscape with dense and highly interconnected aquatic resources. In addition, the values of the potentially affected aquatic resources in this case are among the highest evaluated under CWA Section 404 and support important commercial, sport, and subsistence fisheries for salmon and other fishes. Because the nature and extent of the proposed discharges reflect some of the most highly significant and complex discharge activities with the potential for serious adverse impact contemplated by the Guidelines, the level of information, evaluation, and documentation necessary for this project to demonstrate compliance with the Guidelines is significant.

III. Key Findings from Clean Water Act Section 404 Coordination

The following summarizes the interagency team's key findings and areas of agreement.

² 40 CFR 230.11.

A. Section 230.10(a) – Identification of the Least Environmentally Damaging Practicable Alternative

The Guidelines only allow authorization of the Least Environmentally Damaging Practicable Alternative (LEDPA). The Guidelines³ identify that, “no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.” Identification of the LEDPA is achieved by performing an alternatives analysis that evaluates the direct, secondary/indirect, and cumulative impacts to jurisdictional waters resulting from each alternative considered. Project alternatives that are not practicable⁴ and do not meet the project purpose are eliminated.

Key Findings: Alternative 3 – North Road Only Alternative, Concentrate Pipeline and Return Water Pipeline Variant, which was evaluated in the project’s EIS, is the LEDPA for purposes of the Guidelines.

- This alternative includes the proposed mine site at the Pebble deposit; a transportation corridor with a north access road from the mine site to the west side of Cook Inlet, with a south crossing of Newhalen River; a port at Diamond Point with a caisson supported dock design; a concentrate pipeline to transport concentrate from the mine site to the port and a return water pipeline to the mine site; and a natural gas pipeline that follows the same general route from the Kenai Peninsula to the mine site as Alternative 2.
- The impacts to aquatic resources at the mine site represent the vast majority of the impacts of the project and are effectively the same among the alternatives evaluated in the EIS, thus identification of the LEDPA is driven by the impacts associated with the different transportation corridors and port sites among the alternatives. The rationale for identifying Alternative 3 with the concentrate pipeline and return water pipeline variant as the LEDPA is based on a number of factors that distinguish Alternative 3 from the other alternatives evaluated, in particular:
 - Alternative 3 is the only alternative that avoids direct impacts to the aquatic ecosystem of Iliamna Lake, the largest lake in Alaska and the nursery lake for the world’s largest sockeye salmon fishery. Iliamna Lake provides the majority of sockeye rearing habitat in the Kvichak River watershed and historically has produced more sockeye salmon than any other lake in the Bristol Bay region.⁵ Iliamna Lake supports genetically unique salmon populations within tributary, island, and lake shoreline ecotones and supports one of only five freshwater seal populations in the world;
 - The transportation corridor and port facilities of Alternative 3 would be located farther away from and result in fewer impacts to McNeil River State Game

³ 40 CFR 230.10(a).

⁴ According to the Guidelines, an alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes. (40 CFR 230.10(a)(2)).

⁵ Fair, L. F., C. E. Brazil, X. Zhang, R. A. Clark, and J. W. Erickson. 2012. Review of Salmon Escapement Goals in Bristol Bay, Alaska, 2012. Fishery Manuscript Series No. 12-0. Anchorage, AK: Alaska Department of Fish and Game.

Sanctuary and Refuge. Sanctuaries and refuges managed principally for the preservation and use of fish and wildlife resources are considered special aquatic sites under the Guidelines⁶ and potential impacts to such sites are given heightened scrutiny;

- The concentrate pipeline variant would result in a substantial reduction in truck traffic on the transportation corridor and results in less adverse impacts due to transportation-related fugitive dust; and
- The return water pipeline variant, which would bring filtered concentrate water back to the mine site, facilitates compliance with the CWA National Pollutant Discharge Elimination System New Source Performance Standards.

B. Section 230.10(c) – Evaluation of Significant Degradation

The Guidelines prohibit authorization of a proposed discharge that causes or contributes to significant degradation of the aquatic ecosystem.⁷ The evaluation of the potential for significant degradation “shall be based upon appropriate factual determinations, evaluations, and tests” as described in 40 CFR 230.11 after consideration of potential impacts and effects identified in the Guidelines “with special emphasis on the persistence and permanence of the effects.”⁸

Over three months, the interagency team reviewed the information and analysis regarding the LEDPA relevant to the factual determinations in 40 CFR 230.11. The team’s findings regarding these factual determinations were made “in light of Subparts C through F [of the Guidelines],”⁹ which identify different categories of potential impacts of the discharge of dredged or fill material. The following summarizes the currently proposed project impacts and the interagency team’s findings regarding the relevant factual determinations.

Key Findings: The impacts associated with the LEDPA are expected to cause or contribute to significant degradation of waters of the U.S. pursuant to the Guidelines. The discharge of dredged or fill material associated with the proposed project would result in substantial impacts to waters of the U.S. within the Bristol Bay and Cook Inlet watersheds, including:

- The permanent loss of 2,292 acres of wetlands and other waters, including 105.4 miles of streams,
- Temporary direct impacts to 714 acres of wetlands and other waters, including 5.8 miles of streams (primarily during construction activities), and
- Secondary impacts to 1,647 acres of wetlands and other waters, including 80.3 miles of streams associated with fugitive dust deposition, dewatering, and fragmentation of aquatic habitats.

The current proposal involves mining 1.44 billion tons of material over a 20-year time period. As this represents only a fraction of the ore at the deposit site, expansion of the mine site is likely and was included in the EIS as a reasonably foreseeable future action. The Corps estimates that the cumulative direct impacts (i.e., not including anticipated secondary impacts) from the

⁶ 40 CFR 230.40.

⁷ 40 CFR 230.10(c).

⁸ *Id.*

⁹ 40 CFR 230.11.

proposed project and its likely expansion include permanent impacts to more than 10,744 acres of wetlands and other waters, including 335 miles of streams.

The majority of these direct, secondary, and cumulative impacts would occur at the mine site, where the direct and secondary impacts of the initially proposed 1.44 billion ton mine would be concentrated in the Koktuli River watershed located in the headwaters of the Nushagak River and the cumulative impacts of a future expanded mine would extend significantly into the Upper Talarik Creek watershed in the headwaters of the Kvichak River.

The interagency team found that the proposed discharges of dredged or fill material would result in significant direct, secondary, and cumulative impacts when considering the physical substrate,¹⁰ normal water fluctuations,¹¹ suspended particulates and turbidity,¹² and the aquatic ecosystem and organisms¹³ pursuant to the factual determinations at 40 CFR 230.11. These findings support a conclusion that the proposed discharges would result in significant adverse effects on human health and welfare; life stages of aquatic life and other wildlife dependent on aquatic ecosystems; aquatic ecosystem diversity, productivity, and stability; and recreational, aesthetic, and economic values.¹⁴

The potential impacts to special aquatic sites, specifically wetlands¹⁵ and riffle and pool complexes,¹⁶ as well as fish and other aquatic organisms¹⁷ and recreational and commercial fisheries¹⁸ were of particular concern, since the streams, wetlands, lakes, ponds, and other aquatic resources that would be impacted by the proposed project are part of the diverse mosaic of aquatic habitats that support the Bristol Bay's valuable fishery resources.¹⁹ Streams, wetlands, and other aquatic resources that would be impacted by the proposed project directly or indirectly support multi-species assemblages of anadromous and resident fish, including genetically distinct salmon populations.

The Koktuli River, whose watershed would experience the vast majority of the proposed project's impacts to streams, wetlands, and other aquatic resources essential to sustaining fish, supports a genetically distinct population of sockeye salmon.²⁰ In addition, sockeye salmon in the Mulchatna River (the Koktuli River flows into the Mulchatna River), including the Koktuli

¹⁰ 40 CFR 230.11(a).

¹¹ 40 CFR 230.11(b).

¹² 40 CFR 230.11(c).

¹³ 40 CFR 230.11(e).

¹⁴ 40 CFR 230.10(c).

¹⁵ 40 CFR 230.41.

¹⁶ 40 CFR 230.45.

¹⁷ 40 CFR 230.31.

¹⁸ 40 CFR 230.51.

¹⁹ Brennan, S. R., D. E. Schindler, T. J. Cline, T. E. Walsworth, G. Buck and D. P. Fernandez. 2019. Shifting habitat mosaics and fish production across river basins. *Science*. Vol. 364, Issue 6442, pp. 783-786.

²⁰ Dann, T. H. *In prep.* An updated genetic baseline for Bristol Bay sockeye salmon. Alaska Department of Fish and Game, Fishery Manuscript Series No. XX-XX, Anchorage.

River population represent a river-type salmon.²¹ This ecotype is evolutionarily important as it is the ancestral form of the species. River-type sockeye salmon typically exhibit greater genetic diversity within and less diversity among populations and are relatively rare in the Bristol Bay watershed.²² Furthermore, expansion of the proposed mine would eliminate or degrade substantial amounts of streams, wetlands, and other aquatic resources in the Upper Talarik Creek watershed that are essential to sustaining another genetically distinct population of sockeye salmon.²³

Individual streams, stream reaches, wetlands, lakes, and ponds play a critical role in protecting the genetic diversity of Bristol Bay's salmon populations since individual waters can support local, unique populations.²⁴ Losing such populations would erode the genetic diversity that is crucial to the stability of the overall Bristol Bay salmon fisheries (i.e., the portfolio effect).²⁵

The streams, wetlands, and other aquatic resources within the Bristol Bay watershed support important commercial and sport fisheries for salmon and other fishes, as well as a more than 4,000-year-old subsistence-based way of life for Alaska Natives. The aquatic resources within the watershed produce the world's largest wild sockeye salmon runs, comprising approximately 51 percent of world commercial harvest.²⁶ The Kvichak and Nushagak Rivers together produce more than 40 percent of the total Bristol Bay sockeye salmon.²⁷ Bristol Bay's Chinook salmon runs are frequently at or near the world's largest (with the Nushagak River accounting for the

²¹ Dann, T. H., C. Habicht, J. R. Jasper, E. K. C. Fox, H. A. Hoyt, H. L. Liller, E. S. Lardizabal, P. A. Kuriscak, Z. D. Grauvogel, and W. D. Templin. 2012. Sockeye salmon baseline for the Western Alaska Salmon Stock Identification Project. Alaska Department of Fish and Game, Special Publication No. 12-12, Anchorage.

²² Wood, C. C., J.W. Bickham, R. J. Nelson, C.J. Foote, and J.C. Patton. 2008. Recurrent evolution of life history ecotypes in sockeye salmon: implications for conservation and future evolution. *Evolutionary Applications*. 1:2. <https://doi.org/10.1111/j.1752-4571.2008.00028.x>.

²³ Dann et al. 2012, *supra* note 21.

²⁴ Quinn, T. P., A. P. Hendry, and G. B. Buck. 2001. Balancing natural and sexual selection in sockeye salmon: interactions between body size, reproductive opportunity and vulnerability to predation by bears. *Evolutionary Ecology Research* 3(8):917–937;

Olsen, J. B., S. J. Miller, W. J. Spearman, and J. K. Wenburg. 2003. Patterns of intra-and inter-population genetic diversity in Alaskan coho salmon: implications for conservation. *Conservation Genetics* 4(5):557–569;

Ramstad, K. M., C. A. Woody, and F. W. Allendorf. 2010. Recent local adaptation of sockeye salmon to glacial spawning habitats. *Evolutionary Ecology* 24(2):391–411; and

Quinn, T. P., H. B. J. Rich, D. Gosse, N. Schtickzelle, and J. Grant. 2012. Population dynamics and asynchrony at fine spatial scales: a case history of sockeye salmon (*Oncorhynchus nerka*) population structure in Alaska, USA. *Canadian Journal of Fisheries and Aquatic Science* 69:297–306.

²⁵ Hilborn, R., T. Quinn, D. Schindler, and D. Rogers. 2003. Biocomplexity and fisheries sustainability. *Proceedings of the National Academy of Sciences of the United States of America* 100:6564–6568;

Schindler, D. E., R. Hilborn, B. Chasco, C. P. Boatright, T. P. Quinn, L. A. Rogers, and M. S. Webster. 2010. Population diversity and the portfolio effect in an exploited species. *Nature* 465:609–612; and

(EPA) U.S. Environmental Protection Agency. 2014. An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska. Final Report. EPA 910-R-14-001A-C. Washington, DC.

²⁶ Pinsky, M. L., D. B. Springmeyer, M. N. Goslin, and X. Augerot. 2009. Range-wide selection of catchments for Pacific salmon conservation. *Conservation Biology* 23:680–691; and

Ruggerone, G. T., R. M. Peterman, and B. Dorner. 2010. Magnitude and trends in abundance of hatchery and wild pink salmon, chum salmon, and sockeye salmon in the North Pacific Ocean. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science* 2:306–328.

²⁷ EPA 2014, *supra* note 25, Appendix A.

largest proportion of these Chinook runs), and the region also supports significant coho, chum, and pink salmon populations. These salmon populations help to maintain the productivity of the entire ecosystem, including numerous other fish and wildlife species.

C. Section 230.10(d) – Evaluation of Minimization and Compensation Measures

The Guidelines prohibit discharges that do not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem.²⁸ This requirement includes appropriate and practicable compensatory mitigation to offset unavoidable environmental impacts associated with discharges permitted under CWA Section 404.

Key Findings: After reviewing the minimization and compensation measures proposed by the permit applicant, including the permit applicant's draft compensatory mitigation plan dated January 2020 and other measures identified during interagency discussions, the team found that these measures would not reduce adverse impacts to aquatic resources at the mine site to a level that would not cause or contribute to significant degradation of waters of the U.S. pursuant to the Guidelines. Even after these minimization and compensation measures are considered, the discharge of dredged or fill material at the mine site would continue to result in significant adverse direct and secondary impacts to approximately 3,016 acres of wetlands and 111 acres of other waters, including approximately 129 miles of streams, that are essential to sustaining fish and other aquatic organisms in the headwaters of the Kuktuli River watershed. The proposed project would also result in secondary impacts due to flow, water chemistry, and temperature alterations in additional miles of streams in the Kuktuli River watershed downstream of the mine site.

Decisions regarding the appropriate type, location, and amount of compensatory mitigation that are necessary to ensure compliance with the Guidelines are made on a case-by-case basis and reflect the anticipated impacts on the aquatic ecosystem resulting from the discharges of dredged or fill material in a given case. In this case, if the permit applicant sought to propose additional compensation measures to attempt to avoid causing or contributing to significant degradation, the interagency team recommends that in light of the nature and magnitude of the impacts at the mine site a compensatory mitigation plan for these impacts should, at a minimum, meet the following requirements:

- 1) *Type*: The compensatory mitigation should be "in-kind," meaning of a similar structural and functional type to the impacted resource, because according to the Guidelines "it is most likely to compensate for the functions and services lost at the impact site."²⁹ In light of the important role that the complex mosaic of aquatic habitats plays in sustaining salmon productivity and stability in these watersheds,³⁰ the compensatory mitigation should reflect a mosaic of wetlands, ponds, streams, and other aquatic resources similar to the impacted aquatic resources.
- 2) *Location*: Because the impacted aquatic resources at the mine site support rich multi-species assemblages of anadromous and resident fish within the Kuktuli River watershed,

²⁸ 40 CFR 230.10(d) and 230.12(a)(3)(iii).

²⁹ 40 CFR 230.93(e)(1) / 33 CFR 332.93.3(e)(1).

³⁰ Brennan et al. 2019, *supra* note 19.

including genetically distinct and locally adapted fish populations, compensation for these impacts should occur within the Kaktuli River watershed.

- 3) *Amount*: In order to reduce the severity of project impacts and avoid causing or contributing to significant degradation, the aquatic resource functional losses from the direct and secondary impacts at the mine site would need to be fully and effectively offset. To accomplish this “a minimum one-to-one acreage or linear foot compensation ratio must be used.”³¹ Such a ratio would apply to aquatic resource establishment, but a higher ratio would apply for other methods of compensation such as restoration or enhancement.³² Further, secondary impacts due to flow alterations in stream reaches downstream of the mine site should be offset by stream restoration, enhancement, or establishment of additional stream miles to the equivalent of stream miles that would be impacted by alterations in stream flow. This percent functional loss of streams would be calculated based on miles of stream where altered flows would occur multiplied by the maximum percent change to monthly flows in that reach.

The interagency team acknowledged that it was not aware of any previous efforts to attempt compensatory mitigation for impacts of the nature and magnitude as those associated with the mine site and that if such a compensatory mitigation plan were developed there would be a high level of uncertainty regarding its ecological outcomes. The team also discussed potential compensatory mitigation requirements regarding the aquatic resource impacts associated with the transportation corridor and port site. The team generally agreed that based on the nature and magnitude of these impacts there is greater flexibility regarding the type and location of compensation necessary to address these impacts. Once the Corps has developed its proposed compensation requirements for the transportation corridor and port site, it committed to engage the interagency team on the review of the complete set of compensatory mitigation requirements for the entire proposed project before sharing those with the permit applicant. Finally, recognizing the need for a careful review of any additional minimization or compensation measures proposed by the permit applicant, the Corps committed to reengage the interagency team in the review of any additional minimization and compensation measures developed by the permit applicant.

³¹ 40 CFR 230.93(f)(1) / 33 CFR 332.93.3(f)(1).

³² “The district engineer must require a mitigation ratio greater than one-to-one where necessary to account for the method of compensatory mitigation” (40 CFR 230.93(f)(2) / 33 CFR 332.93.3(f)(2)).

Attachment A

Interagency 404 Coordination Schedule Regarding Pebble Mine, Spring 2020

Date	Discussion Topics
March 12	Kickoff meeting for 404(b)(1) coordination; Approach for identifying LEDPA
March 13	LEDPA , including action alternatives; Practicability
March 17	Approach to discussing factual determinations
March 19	Meeting schedule
March 26	LEDPA ; Practicability; Subpart C: Physical & chemical characteristics 230.20 Substrate; 230.21 Suspended particulates/turbidity
April 2	Subpart C: 230.22 Water; 230.23 Current patterns/circulation; 230.24 Normal water fluctuations; 230.25 Salinity gradients
April 9	Subpart D: Biological characteristics 230.30 Threatened & endangered species; 230.31 Fish, crustaceans, mollusks, & other aquatic organisms; 230.32 Other wildlife
April 16	Subpart E: Special aquatic sites 230.40 Sanctuaries & refuges; 230.41 Wetlands; 230.42 Mudflats; 230.43 Vegetated shallows; 230.44 Coral reefs; 230.45 Riffle & pool complexes
April 23	Subpart F: Human use characteristics 230.50 Municipal & private water supplies; 230.51 Recreational & commercial fisheries; 230.52 Water-related recreation; 230.53 Aesthetics; 230.54 National & historic monuments
April 30	Discussion of areas of disagreement with the matrix as well as development of a path forward to address subpart H including waiting for PLP to provide revised impact minimization information.
May 7	No interagency meeting – used time to prepare for minimization discussion.
May 14	Subpart H: Actions to minimize impacts 230.70 Actions concerning the location of discharge; 230.71 Actions concerning the material to be discharged; 230.72 Actions controlling the material after discharge; 230.73 Actions affecting the method of dispersion; 230.74 Actions related to technology; 230.75 Actions affecting plant & animal populations; 230.76 Actions affecting human use; 230.77 Other actions
May 21	Subpart H (continued) and Subpart J: Compensatory mitigation for losses of aquatic resources
May 28	Subpart H and Subpart J (continued) Wrap-up